

WHAT IS CLAIMED IS:

- 1               1. A method for producing a fucosylated glycoprotein, the method  
2 comprising:
  - 3               contacting a recombinant fucosyltransferase protein with a mixture comprising  
4 a donor substrate comprising a fucose residue, and an acceptor substrate on a glycoprotein,  
5 under conditions where the fucosyltransferase catalyzes the transfer of the fucose residue  
6 from a donor substrate to the acceptor substrate on the glycoprotein, thereby producing a  
7 fucosylated glycoprotein,  
8               wherein the recombinant fucosyltransferase protein comprises a polypeptide  
9 having greater than 90% identity to an amino acid sequence selected from the group  
10 consisting of SEQ ID NO:2, 4, 6, and 8.
- 1               2. The method of claim 1, wherein the polypeptide comprises an amino  
2 acid sequence selected from the group consisting of SEQ ID NO: 2, 4, 6, and 8.
- 1               3. The method of claim 1, wherein the polypeptide comprises SEQ ID  
2 NO: 2.
- 1               4. The method of claim 1, wherein the polypeptide further comprises an  
2 amino acid tag.
- 1               5. The method of claim 1, wherein the method further comprises a step of  
2 purifying the fucosylated glycoprotein.
- 1               6. The method of claim 1, wherein the acceptor substrate is a glucose  
2 residue, and wherein the recombinant fucosyltransferase protein comprises a polypeptide  
3 having greater than 90% identity to SEQ ID NO:6.
- 1               7. The method of claim 1, wherein the acceptor substrate is an N-  
2 acetylglucosamine residue, and wherein the recombinant fucosyltransferase protein  
3 comprises a polypeptide having greater than 90% identity to an amino acid sequence selected  
4 from the group consisting of SEQ ID NO:2, 4, and 8.
- 1               8. The method of claim 1, wherein an acceptor substrate on the  
2 glycoprotein comprises Gal $\beta$ 1-OR, Gal $\beta$ ,3/4GlcNAc-OR, NeuAc $\alpha$ 2,3Gal $\beta$ 1,3/4GlcNAc-Or,

- 3 wherein R is an amino acid, a saccharide, an oligosaccharide, or an aglycon group having at
- 4 least one carbon atom.